

## CLAIMS

1. Scanning device (1) for register marks (21, 22, 31, 32) printed onto a substrate (2) which travels into a polychrome printing machine, comprising at least one light source (3, 4) enlightening on the substrate (2) a lighting area (5) crossed by the register marks (21, 22, 31, 32), an optic (6) which allows obtaining on a photosensitive element (7), made up of a plurality of pixels (17), the travelling images of said register marks made up of a plurality of portions (8) successively scanned according to a certain scanning rate, as well as a microprocessor (9) driving the lighting of the source (3, 4) and controlling electric pulses produced by the pixels (17), characterized by the fact that the source (3, 4) enlightens the substrate (2) onto a lighting area (5) with at least one modulation of intensity and/or color during the simultaneous or sequential scanning of at least two register marks (21, 22, 31, 32).

2. Device according to claim 1, characterized by the fact that the modulations related to the light of the lighting area (5) are carried out with synchronism according to the scanning rate of each portion (8) of images.

3. Device according to claim 1, characterized by the fact that the modulations related to the light of the lighting area (5) are carried out with synchronism according to the scanning rate of each register mark (21, 22, 31, 32).

4. Device according to claim 1, characterized by the fact that the amount of modulations numbered by a time unit is identical to the amount of portions (8) of images scanned in this same time sequence.

5. Device according to claim 1, characterized by the fact that a continuation of different modulations constitutes a lighting cycle programmed and controlled by the microprocessor (9), and by the fact that the light of the lighting area (5) is subject to variations according to a successive repetition of at least one lighting cycle.

6. Device according to claim 5, characterized by the fact that during a same lighting cycle the amount of different colors or intensities applied to the lighting area (5) is proportional to the amount of register marks of different colors simultaneously scanned.

7. Device according to claim 5, characterized by the fact that the contrast of the register mark (21, 22, 31, 32) compared to the substrate (2) is improved by using for the lighting of the area (5), in a same cycle and for each color of the register marks, a light of a wave length ranging between 380 nm and 780 nm and/or of an intensity ranging between 5% and 100% of the maximum intensity.

8. Device according to claim 1, characterized by the fact that the photosensitive element (7) comprises a plurality of pixels (17) sensitive to at least one wave length of at least one printed color.

9. Device according to claim 1, characterized by the fact that said portions (8) successively scanned, allow, when they are located the ones next to the others, covering at least the whole surface of the register marks (21, 22, 31, 32) simultaneously scanned.

10. Device according to claim 1, characterized by the fact that said portions (8) successively scanned are geometrically shaped, identically to the ones owned by areas (8a, 8b) of a width ranging between 0.1 mm and 5 mm.

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